The Fire Research Development and Application Committee (FRDAC)

An AWFCG Sponsored Committee

https://www.frames.gov/partner-sites/afsc/partner-groups/frdac/

The purpose of the FRDAC is to:
1) identify and prioritize ***fire research needs*** in Alaska, and
2) facilitate the development and exchange of fire effects, ***fire behavior, fire danger and weather information***.

The Purpose of the Alaska Fire Research Needs List

- identify and prioritize current data management needs
- promote awareness
- encourage researchers to develop projects that address them

2014 Fire Research Needs List

Click on each General Topic to see the *full description*, a list of *research questions/needs*, and *related research* (in development). Use the search box on the right to search for terms or phrases within the table below.

Priority	Category	General Topic	Group ID
01	Fire Behavior	Fire Behavior Models: Validation and Application [LINK]	2010-29
02	Fire Danger	CFFDRS Fire Weather Indices: Evaluation and Calibration [LINK]	2010-04
03	Climate Change	Climate Impacts on Fire Regimes: Past, Present and Future [LINK]	2010-16
04	Fuels Treatment	Fuels Treatments: Short- and Long-Term Effectiveness [LINK]	2010-18
05	Fire Effects	Human Subsistence Lifestyles [LINK]	2010-09

Online descriptions of CFFDRS-Related Research Needs

Priority 1 – Fire Behavior Models, Validation and Application

Description:

Research is needed to improve the knowledge of fire behavior and appropriate fuel models for Alaska. More information on the 40 Fuel Models and the Canadian Forest Fire Behavior Prediction (FBP) Fuel Models is needed on a spatial scale for use in fire behavior modeling. Fire modeling tools are currently utilized by Alaska fire managers (e.g. Fire Spread Probability [FSPro] in the Wildland Fire Decision Support System [WFDSS]). However the confidence level of model outputs from the tools is unknown. Efforts have been made to relate LANDFIRE ecotypes to Alaskan Fuel Models. However, questions remain about the accuracy of the LANDFIRE vegetation classifications and crosswalks between LANDFIRE and Alaskan fuel types.

There is a need for research that will improve the knowledge of fire behavior and appropriate fuel models for several unique fuel types; wetlands, shrublands, and tundra ecosystems as well as in forested ecosystems with insect and disease damage. Additionally, fuel models and fire behavior in early successional post-fire forest types are also of particular interest since shortened fire return intervals are occurring and recent burned areas are no longer acting as fuel breaks.

Research Questions/Needs:

- Fire behavior validation of the 40 Fuel Models and Canadian Fuel Models used in Alaska.
- Are fire behavior modeling tools accurately reflecting drought conditions? How well do the models correlate with CFFDRS indices, fuel moisture, and observed fire behavior?
- Landscape-level landcover classifications and fuels maps need to be updated to incorporate succession within recent burns before modeling application.
- How accurate are the LANDFIRE vegetation classifications? How accurate are the crosswalks between LANDFIRE and Alaskan fuel types?
- Which fuel models should be used for non-forested tundra ecosystems, early successional post-fire forests and forested ecosystems with insect and disease damage? Validate fuel models against actual fire behavior.
- What climatic, weather and fuels conditions allow fires to burn into recently burned areas?

Priority 2 – CFFDRS Fire Weather Indices, Evaluation and Calibration

Description:

In Alaska, fire planners, fire managers, and firefighters heavily utilize the CFFDRS indices for prescribed burn planning, daily resource availability and allocation, operational strategies and suppression tactics. The CFFDRS Fire Weather Indices are based on empirical data from eastern red and jack pine stands. Further empirical studies are needed to determine if Alaskan fuels should have modified algorithms to better relate observed data to the CFFDRS indices.

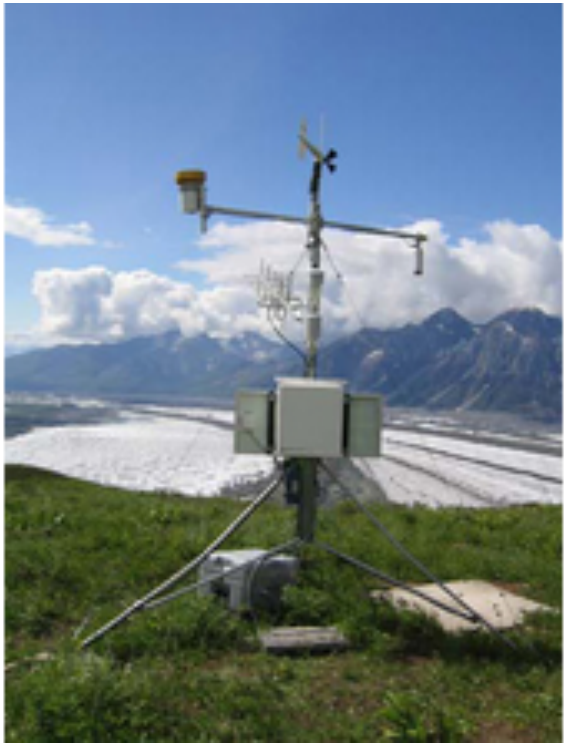
Specifically, there is a strong need for calibration of the CFFDRS indices for Alaskan boreal fuel types to ensure accurate representation of seasonal changes in duff moisture. Also needed is a mechanism for standardization of spring start-up values for the CFFDRS indices to adequately reflect the effects of over-winter drought conditions, snowmelt date, and soil thaw on fire danger.

Research Questions/Needs:

- Evaluate CFFDRS fire weather indices and drying trends throughout Alaska. Are there variations across regions?
- Evaluate relationships between CFFDRS indices and: 1) probability of ignition, 2) rate of spread, 3) fire duration and 4) depth of organic fuel consumption.
- Are indices calculated from remote automated weather stations (RAWS) accurately representing duff moisture? Do they adequately reflect the effects of over-winter drought conditions, snowmelt date, and soil thaw?
- Should over-winter drying values or default startup values be utilized for drought codes, particularly in relation to the occurrence of fires that overwinter? Can these codes be tied to early season fire danger predictions?
- How does soil moisture fluctuate throughout spring melts and summer drying? How accurately are these fluctuations represented by the moisture codes?

CFFDRS Ranking in Fire Research Needs Lists:

- 2003 - CFFDRS number 1
- 2005 - CFFDRS number 2
- 2008 - CFFDRS ranked High
- 2011 - CFFDRS ranked number 2
- 2014- CFFDRS ranked number 2

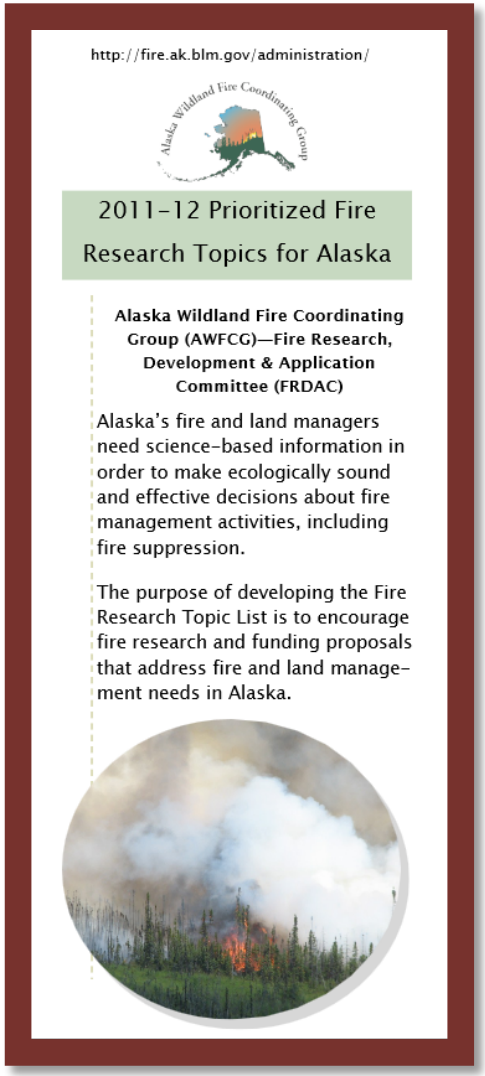


* different ranking system

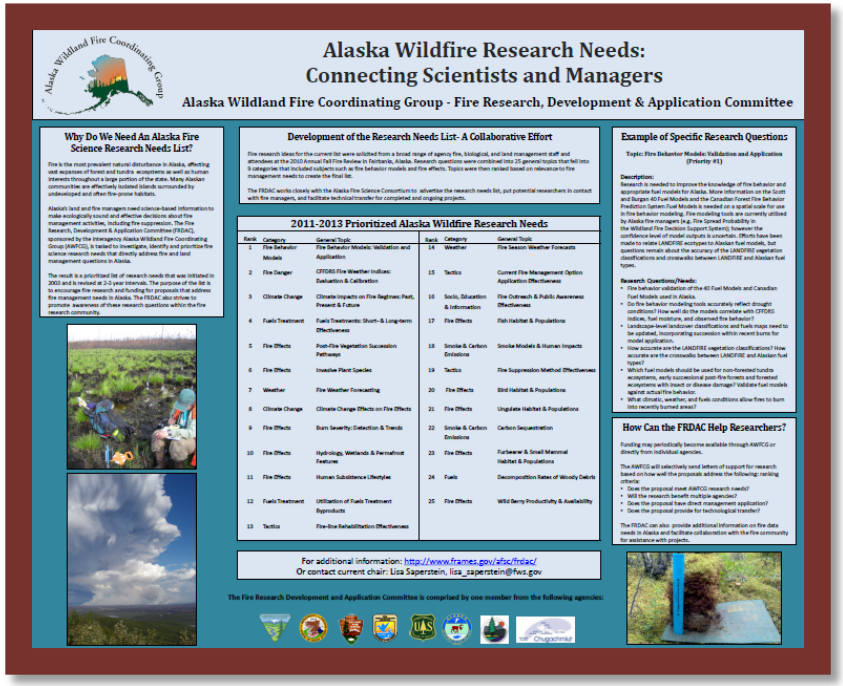
Promoting the Research Needs

Online:

Pamphlets:



Presentations in & out of Alaska:



Promoting the Research Needs – FRDAC Letters of Support for JFSP Funding

Letters of Support

Funding Opportunities

2015 JFSP Funding Opportunity Notices

The FRDAC encourages researchers to consider projects that address topics on the research needs list. Although no funding is allocated specifically for projects, researchers are encouraged to submit proposals to various funding sources (e.g., Joint Fire Science Program, National Science Foundation, etc). Funds may periodically become available through the Alaska Wildland Fire Coordinating Group (AWFCG) or directly through individual agencies.

AWFCG will selectively send letters of support for research based on how well they meet the following criteria:

1. Does the proposal meet the established AWFCG research needs?
2. Will it benefit multiple agencies?
3. Does the proposal have direct management application?
4. Does the proposal provide for appropriate technological transfer?

Contact the FDRAC Chair to request a letter of support.

Submitting a proposal to the Joint Fire Science Program? All requests for AWFCG letters of support must be submitted to FRDAC by:

November 7, 2014

FRDAC encourages you to submit your request earlier if possible.